

TUBER OF ETHOMEDICINAL PLANTS BALI, NUTRITIONAL AND ORODENTAL HEALTH

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ABSTRACT

This study is about be use tuber of Bali traditional plants for nutrition and orodental health, were carried out in some place in Bali. This study was carried for three months with purpose to know nutrition, kind and plants species and tuber of plant to be used as a traditional treatment for nutrition and orodental health. The study will carried through literature study, confirmation through interview, and observation; and than to resulting of this study as used as the description method. The data recorded are name of plant as a local name, general name, and scientific name; nutrition and bioactive substance content, the tuber of plant to be useful as a traditional nutrition and bioactive substance to treat the orodental health, with make from tuber. Most parts of the plant used for the traditional orodental nutrition and health is 11 species is the tuber of plant, the most commonly consumed is *Curcuma domestica*, *Caempferia galansa*, *Curcuma longa*, *Curcuma purpurascens*, *Alpinia galanga*, *Zingiber cassumunar*, *Zingiber officinale*, *Zingiber aromaticum*, *Caempferia rotunda*, *Ipomoea batatas* and *Allium cepa*. The nutritional content of the tuber of the plant for orodental health is protein, vitamin A, B, C and mineral Mg, K, Ca, Fe, P, I, Na, Zn. The high content of vitamin, mineral, antioxidant and anti-fungi, anti-bacteria and anti-virus in tuber of Bali traditional plants is increase immunity, very good for dental and oral health

Keywords : *Tuber, Ethnomedicinal Plants Bali, Nutrition, Bioactive substance Orodental,Health*

Introduction

Average-as-100-to-150 plants family occurrence in Indonesia, and amount of that more of all have a potential useful as an industrial plants, fruit crops, spices crops, traditional drug crops or plant. Indonesia has amount of people more than 250 millions and most if than star in the village. More community people stay in the village especially in the remote area cause even distribution of development as field of education and health difficult to realization (Sastroprodjo, 1990). In the reached areas, environmental useful especially crops or plants to fulfill the needed for health like for traditional drug so higher (Sutarjadi, 1992).

In Indonesia utilizing the traditional drugs has a close relationship with traditional therapy as inherited with hereditary in the circle of the empire or palace the indigenous medical practitioners, or a women made “*jamu gendong*” in the village. In the mean time more before another governments made the traditional

medicinal clinics supervised with a doctors in the hospitals, Indian people was precede officially declare the traditional medicinal clinics in each hospitals. Chinese government very support the development of traditional medicinal in all seriousness with formed the special institution for research and clinical test about restorative power some kind of natural compound include drug crops or plants (Agro Media, 2003).

As a trend of life style “back to nature” now, thus that made the traditional medicinal more increase, supported with more of medical circles as enter to developed that, until that in the big cities was begin appear in members the doctors as combination medicinal method with traditional drugs. A trend increase use of traditional drugs be based on several reason : (1) Now a price of fabrication drugs was more and more expensive, cause the community people begin to look for an alternative as a cheaper and easy acquired but not defeated efficacious with patent fabrication drugs, (2) Side effect as cause

of the traditional drugs is very low, and than amount of certain plants species until now not showed yet side effects absolutely, and (3) Chemical compound be contained in a traditional drugs in a fact as a fundamental modern medicinal medical because fabrication drugs is made with use from chemical compounds as a synthesis from natural compounds of a traditional drugs. That synthesis product be continued with clinical tests to the animal and human until the last time acquired a compounds as a restorative power for prevent and treat a certain disease.

The traditional medicinal in some west state was get place in some hospital. Food research center in United State was study for a long time useful of curcuma (*Curcuma longa* or *Curcuma domestica*). The result of this study found that a rhizome of curcuma content a compound as curcumin as a restorative power to improved lever function and characteristic of an heparprotective mean that can protected lever function from disturbing the toxic compound. Curcuma also contain antibacterial compound and anti inflammatory until that can cure the inflammation of lever. In Indonesia the drugs with basic commodity curcumin was sale in the drug store, once of that with basic commodity as an extract rhizome of curcuma (*Curcuma purpurascens*). Some of hospitals even make use of liquid rhizome curcuma as a liquid an infusion for a victim of a lever disease (Agro Media, 2003).

A main duty of dental is chewing tool, because as a protrusion at a dental, a foods is easy to soften. Oral and dental also help a human to speak will be study in a profound manner. Oral as borders of cheek, lip, with orthopharynx in the distal area, upper and lower jaw with dental as an organ in the oral have a main function as a softened. Some diseases in this area can mentioned as decreased saliva cause there disturbing the saliva gland, as cause decreased any element in the saliva. Implication of this there disturbing of balance oral microorganisms, halitosis, difficult to swallow food, and less fluent to speak. But if saliva to be increase also influential to self confidence (Mudjosemedi, 2005).

Methods

To collect data in this study about make use of traditional drug plants for medicated the dental diseases are found as a conclusion with

descriptive method. Such a thing feasibility with : 1) Literature study for inventory some plants as a restorative power to medicinal the dental diseases such read book and recorded the paper of some study of plants as a traditional drugs especially for dental diseases, 2) Interview to confirm data with community people such an interview with community people or public figure especially “*Balian Usadha*”, a leader of community people, and a people in the village as make use of drug plants for the traditional medicinal, and 3) Observation.

The Plants Tuber Use for Nutrition, Bioactive Substance and Oro dental Health

Based on the result of literature study, interview, and observation in some village in Bali, be found that 11 species tuber of ethnomedicinal plants as usually and can use for medicinal the dental diseases. Most of all used of the species for a ethnomedicinal is a plants of leaves. The parts of plant as most of all used as traditional drug is a leaf of plants. Most of all parts of plant as a drug plants content compounds as possess the disinfectan and antiseptic agent or antibiotics like: alkaloids, phenolics, iodine, alcohol and other. Iodine is a strong and rapidly acting bactericidal is the drugs are used for acute leukaemias, lymphomas, and embryonal tumours. Phenolics have been used as dressing to disinfect root canal, they are cheap and effective, strongly antiseptic, and have a wide range of antibacterial activity.

In Bali there is a known drink called *loloh*, made from the leaves of medicinal plants. The efficacy of *loloh* as a health drink is believed by the people of Bali to be declining, especially after the tendency of people to look for alternative natural treatments derived from plants. On the island of Bali there were 9 types of *loloh* made from tuber of medicinal plants, the most commonly consumed are *curcuma domestica*, *Caempferia galansa*, *Curcuma longa*, *Curcuma purpurascens*, *Alpinia galanga*, *Zingiber cassumunar*, *Zingiber officinale*, *Zingiber aromaticum*, and *Caempferia rotunda* (Yusa and Suter, 2013). 1 types of which are made from the tuber of medicinal plants have been produced / marketed namely: *loloh kunyit*

Based on the result of literature study, interview, and observation in some village in Bali, be found that 11 species ethnomedicinal plant Bali, as usually and can use for medicinal

the orodental diseases. Most of all used of the species for drugs is a plant of curcuma (*Zingiberaceae*) family. From all plants species, most of all used as traditional drugs is an onion (*Allium cepa* var. *Ascalonicum*) as any time standby in the kitchen each family in the village in Bali. The parts of plant most of all used as traditional drugs are a leaf of plant. Most of all parts of plant as a drug plants content compounds as possess the disinfectan and antiseptic agent or antibiotics like: alkaloids, phenolics, iodine, alcohol and other. For example *Zingiberaceae* family in most of all content iodine compound as antiseptic agent. Iodine is a strong and rapidly acting bactericidal agent and will kill some spores and viruses in addition to most bacteria and fungi. Plant alkaloids is the drug are used for acute leukaemias, lymphomas, and embryonal tumours. Phenolics have been used as dressing to disinfect root canal, they are cheap and effective, strongly antiseptic, and have a wide range of antibacterial activity. Alcohol or wine palm it once of antiseptic and at the optimal concentration off 70% it is useful for preparing cean skin for injection, and it is however ineffective In oral mucosa. Tannin is once compound as a disinfectan, antiseptic or antibiotic for wide range antibacterial activity.

Some tuber species drug plants as usually used as a traditional drugs as medicinal the dental disease are :

Curcuma domestica

The local name/the general name is *Kunyit/Kunyit*; the scientific name is *Curcuma domestica*; simplisium is a rhizome; the chemical and antioxidant compound contents as volatile oil, curcuminoid, curcumin, iodine; and the restorative power as a drug is the mouth wash. The *Curcuma domestica* are highly content iodine compound as antiseptic agent. Iodine is a strong and rapidly acting bactericidal agent and will kill some spores and viruses in addition to most bacteria and fungi, very good for dental and oral health. The high content of mineral iodium and antioxidant is increase immunity, very good for dental and oral health. The antioxidants contained in *kunyit* are effective in counteracting free radicals. One study conducted by cancer experts said if the content of curcuminoids in *kunyit* has a stronger efficacy to ward off cancer up to 8 times compared to vitamin E. The compound

curcumin in *kunyit* is also able to inhibit the development of cancer cells, relieve pain, and ward off odors and itching in wounds due to cancer. Researchers found that the antimicrobial content of *kunyit* was beneficial in inhibiting the growth of various types of fungi, bacteria and viruses. Not only as an anti-cancer, *kunyit* is also good as an anti-poison and anti-Alzheimer (Rolumitriasih, 2018; Wiswasta, 2006).

Alpinia galanga

The local name/the general name is *Isen/Lengkuas*; the scientific name is *Alpinia galanga*; simplisium is a rhizome; the chemical compound and antioxidant contents as volatile oil, eugenol, sesquiterphen, galangol, chamfora, pinen, and metil cyanamat iodine; and the restorative power as a drug is the mouth wash. The high content of mineral iodium and antioxidant in *Isen* is increase immunity, very good for dental and oral health. The antioxidants contained in *Isen* are effective in counteracting free radicals. Researchers found that the antimicrobial content of *Isen* was beneficial in inhibiting the growth of various types of fungi, bacteria and viruses, very good for dental and oral health (Rolumitriasih, 2018; Wiswasta, 2006).

Zingiber Cassumunar

The local name/the general name is *Bangle/Bangle*; the scientific name is *Zingiber Cassumunar*; Simplisium is a rhizome; the chemical compound and antioxidant contents as albuminoid, sineol, pinen, and sesquiterphin iodine; and the restorative power as a drug is the mouth. The high content of mineral iodium and antioxidant in *Isen* is increase immunity, very good for dental and oral health. The antioxidants contained in *Isen* are effective in counteracting free radicals. Researchers found that the antimicrobial content of *Isen* was beneficial in inhibiting the growth of various types of fungi, bacteria and viruses, very good for dental and oral health (Rolumitriasih, 2018; Wiswasta, 2006).

Zingiber Officinale

The local name/the genera name is *Jae/Jahe*; the scientific name is *Zingiber Officinale*; simplisium is a rhizome; the chemical compound and antioxidant contents as volatile oil, zingetol , zingibetol, zingiberin, borneol,

and sineol; iodine and the restorative power as a drug is the mouth (Sutarjadi, 1992; Mudjosemedi, 2005; Cawson, *et al.*, 1995). The nutritional content of *Jahe* is protein, vitamin C, B, mineral Ca, Fe, Mg, P, K, Na and Zn (Dickson, 2018). The high content of vitamin, mineral and antioxidant in *Jahe* is increase immunity, very good for dental and oral health.

Zingiber aromaticum

The local name/the general name is *Gamongan/Lempuyang wangi*; the scientific name is *Zingiber aromaticum*; simplisium is a rhizome; the chemical and antioxidant compound content as volatile oil, iodine, "starch"; and the restorative power as a drug is the dental disease and the mouth wash. The high content of vitamin, mineral and antioxidant in *Gamongan* is increase immunity, very good for dental and oral health (Wiswasta, 2006).

Curcuma purpurascens

The local name/the general name : *Temutis/Temu*; the scientific name: *Curcuma purpurascens*; simplisium is a rhizome; the chemical and antioxidant compound contents as volatile oil, chamfora, and borneol iodine; and the restorative power as a drug is the mouth wash. The high content of vitamin, mineral and antioxidant in *Temutis* is increase immunity, very good for dental and oral health (Wiswasta, 2006).

Caempferia galanga

The local name/the general name is *Cekuh/Kencur*; the scientific name is *Caempferia galanga*; simplisium is a rhizome; the chemical and antioxidant compound contents as volatile oil, borneol, chamfora, sineol, iodine and etil alcohol; and the restorative power as a drug is the mouth wash. Kencur mineral nutrient content around 13-73%. The high content of mineral and antioxidant in *Kencur* is increase immunity, very good for dental and oral health (Wiswasta, 2006).

Caempferia rotunda

The local name/the general name is *Temu gongseng/Kunci pepet*; the scientific name is *Caempferia rotunda*; simplisium is a rhizome; the chemical and antioxidant compound contents as volatile oil, iodine and chamfora; and the restorative power as a drug is the mouth wash. %. The high content of mineral Iodium

and antioxidant in *Kunci pepet* is increase immunity, very good for dental and oral health (Wiswasta, 2006).

Ipomoea batatas

The local name/ the general name is *Kesela/Ketela rambat*; the scientific name is *Ipomoea batatas*; simplisium is a tuber; the chemical compound antioxidant contents as lafeic acid, starch, calcium, iron, and vitamin; and the restorative power as a drug is the compress an infection of thyroid gland. The high content of antioxidant, mineral Iodium, Calsium and Iron in *Kunci pepet* is increase immunity, very good for dental and oral health (Wiswasta, 2006).

Conclusion

The conclusion of this research are founded 11 species tuber of ethnomedicinal plants Bali that can medicinal or cure the dental diseases, the most commonly consumed is *Curcuma domestica*, *Caempferia galansa*, *Curcuma longa*, *Curcuma purpurascens*, *Alpinia galanga*, *Zingiber cassumunar*, *Zingiber officinale*, *Zingiber aromaticum*, *Caempferia rotunda*, *Ipomoea batatas* and *Allium cepa*. The nutritional content of the tuber of the plant for orodental health is protein, vitamin A, B, C and mineral Mg, K, Ca, Fe, P, I, Na, Zn. The high content of vitamin, mineral, antioxidant and anti-fungi, anti-bacteria and anti-virus in tuber of Bali traditional plants is increase immunity, very good for dental and oral health.

References

- Agro Media. Ramuan tradisional untuk mengatasi aneka penyakit. Depok: Redaksi Agro Media Pustaka; (2003). p. 178 .
- Wiswasta, IGNA. (2006). Bali traditional drug plants for dental diseases. *Journal of The Indonesian Dental Association*, 56 (3). p. 101
- Cawson RA, Spector RG, Skelly AM.(1995). *Basic pharmacology and clinical drug use in dentistry*. New York: Churchill Livingstone. p. 227.
- Dickson. (2018). *Kandungan gizi dan manfaat jahe*.

[Http://ilmupengetahuanumum.com/kandungan-gizi-jahe](http://ilmupengetahuanumum.com/kandungan-gizi-jahe).

Mudjosemedi M.(2005) Jentera ilmu kedokteran gigi. sumbangannya di masa depan. *Pidato Pengukuhan Jabatan Guru Besar pada Fakultas Kedokteran Gigi*. Universitas Gajah Mada, Yogyakarta; 2005. p. 28.

Rolumitriasih. (2018). *Nutrisi pada kunyit bermanfaat mengobati kanker*. <https://www.vemale.com/tanaman-obat>

Sastroprodjo. (1990).*Tumbuhan obat*. Jakarta: Lembaga Bioiogi Nasional LIPI. Balai Pustaka. p.. 134.

Sudirga, SK (2004). *Pemanfaatan tumbuhan sebagai obat tradisional di desa truncan. prosiding seminar dan lokakarya tanaman obat dan tanaman upacara agama*. Kebun Raya Eka Karya Bedugul Bali; 2004. p. 49-56.